

The California Zebra Mussel Watch Program

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Public Comments

No public comments were received for this proposal.

Technical Synthesis Panel Review

Proposal Title

#0187: The California Zebra Mussel Watch Program

Final Panel Rating
inadequate

Technical Synthesis Panel (Primary) Review

TSP Primary Reviewer's Evaluation Summary And Rating:

This proposal doesn't advance scientific understanding. Clearly zebra mussel is a threat if introduced, and there is good chance it will be introduced. The problem is that this research is monitoring and outreach, not really hypothesis-testing science. It is not clear how the 21 lakes were selected. I could see a set of hypothesis structured around monitoring in different hazard categories to see if the categorization scheme is truly a good predictor of lakes likely to be invaded. Incorporation of findings from this project into BDAT is a positive aspect of this proposal

Additional Comments:

External reviewers rated the proposal as good, very good and excellent. Reviewers felt the monitoring approach was generally sound and recognized the importance of detecting this invasive species as soon as possible as well as educating the public about how to prevent its invasion. However, all reviewers noted that this was a monitoring and outreach proposal, not one testing scientific hypotheses or one whose results would advance scientific understanding. Reviewers were concerned that authors did not provide documentation on the success of previous outreach and education efforts and the personnel appeared to have little expertise in developing and

Technical Synthesis Panel Review

assessing educational materials. Necessary details of the sampling approach were not provided. Some budgetary questions were raised about why state employees were requesting salary support from the science program.

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Technical Synthesis Panel (Discussion) Review

TSP Observations, Findings And Recommendations:

All reviewers noted this is not a proposal testing scientific hypotheses. This is a monitoring and outreach proposal only.

Although the proposal states that there is an existing monitoring and outreach program, there was a lack of evidence for the success of this program. Also, the proposal does not evaluate the success of the existing public outreach program in reducing the spread of zebra mussels or public awareness of the problem. It appears that the study relies on volunteers, but does not mention how the quality of the work of volunteers will be controlled or how the volunteers would be trained.

The proposal demonstrates no discussion of how the effects of the sampling would affect the spread of mussels or how they would prevent contributing to contamination.

Rating: inadequate

Technical Review #1

proposal title: The California Zebra Mussel Watch Program

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	The goals of the program are very well stated. The P.I.'s have substantial experience running the Zebra Mussel Watch program (or, it's current incarnation) and appear to be highly knowledgeable and well connected to the national monitoring effort. The goals of "prevention" and "education" are extremely important, and there is really no other way to prevent this ecological disaster-in-the-making. This approach is being used in many other states and appears to be effective.
Rating	excellent

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Comments	The justification is also sound. The ecological and economic consequences of a zebra mussel invasion are very clear and highly significant. The authors have developed a strong rationale for continuing the monitoring and education program.
Rating	excellent

Technical Review #1

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	The approach is consistent with other monitoring, outreach and education programs that are currently in place in other states (at least, this is true on the east coast where I have participated in several meetings concerning such efforts). The P.I.'s have developed a good approach to prevention that has already shown to be effective in stopping several possible invasions.
Rating	very good

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	Based on the current effort, the proposed continuation and the expansion of the zooplankton monitoring program seem very feasible. The zooplankton program is to be carried out by trained professionals and is not volunteer - this is important as it is technically more advanced than monitoring settlement plates.
Rating	very good

Monitoring

If applicable, is monitoring appropriately designed (pre-post comparisons; treatment-control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	See comments above regarding feasibility of the monitoring. Based on bivalve life cycles, it would appear that the frequency of monitoring is
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Technical Review #1

	appropriate. There really is no need for a "control" as the P.I.'s are simply testing for presence/absence and hoping for the best (i.e. absence). It's not an experiment.
Rating	excellent

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	The outreach products (pamphlets, presentations) are likely to be extremely helpful. If the goal of preventing invasion is met, the benefits will be well in excess of the cost. This is an extremely worthwhile project, if it succeeds!
Rating	excellent

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	The P.I.'s are very well qualified, particularly given their past experience in developing the zebra mussel program. This is essentially a "continuation" proposal and it's quite likely that the investigators have everything in place to keep the program afloat.
Rating	excellent

Technical Review #1

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	The budget seems unclear to me as I'm not certain that state employees should be asking the state for salary. More justification would have been appropriate.
Rating	good

Overall

Provide a brief explanation of your summary rating.

Comments	I think the program is important, the arguments are well developed, and the P.I.'s are very well qualified. I give the proposal strong support.
Rating	excellent

Technical Review #2

proposal title: The California Zebra Mussel Watch Program

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	Goals of the proposal are clear and consistent. The information gathered will be useful in monitoring arrival of invasive species.
Rating	very good

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Comments	There are several fronts for the research: public outreach, direct sampling, and centralized reporting. The public outreach portion seems reasonable. The stakeholder meetings seem vital as a large risk is from transport into the state via boaters. The monitoring schema is somewhat puzzling in that only one station is noted for some of the high priority areas while 5 are located at other high priority stations. Central reporting is reasonable as long as the website is kept current, keywords are selected well, and listserves are kept up to date.
Rating	very good

Technical Review #2

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	Approach is well reasoned. It is necessary to educate the public as extra eyes in this type of invasive species monitoring program. Training and updating are essential. It is unclear how much the actual sampling will add to the known data on the species, but certainly from an outbreak perspective, the monitoring plan will help to create more realistic models for early eradication. The information may be useful to decision makers at the local level. It is likely that the educational portion of the project will have the greatest impact. There is no information on how the researchers will assess the effectiveness of their outreach program.
Rating	good

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	The approach on all of the tasks seems sound. I would urge more attention to assessing the outreach effectiveness.
Rating	very good

Monitoring

If applicable, is monitoring appropriately designed (pre–post comparisons; treatment–control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	
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Technical Review #2

	Monitoring is for early detection, basically a presence-absence system, rather than for statistical comparisons. So, the type of monitoring and the methods are reasonable for this purpose. The trailer surveys may yield a great deal of useful information and the format should be thought out carefully.
Rating	very good

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	Interpretive outcomes could come from the trailer surveys and from assessments of educational outreach. Contributions to larger data sets are considered for the monitoring data.
Rating	very good

Additional Comments

Comments	There seem to be some missed opportunities to mine the proposed data collections in a different way. The educational outreach seems a key, yet effectiveness of the outreach to stakeholders and other groups are not well assessed. The trailer surveys could yield interesting data to target out of state educational information, but it is not clear from the proposal the level of data analyses for these surveys. Overall, the multiple approach to the invasive species potential is reasonable.
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Technical Review #2

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	The authors have been involved in previous studies of this type and have good backgrounds to carry out the proposed scope of work.
Rating	very good

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	Budget seems reasonable. Probably should have multiple phytoplankton nets and a backup pump. These are minor parts of the budget.
Rating	very good

Overall

Provide a brief explanation of your summary rating.

Comments	The overall approach is sound and will continue an educational outreach and monitoring program that has generated useful information previously. I did not see in backgrounds of either PI expertise in developing and assessing educational materials. These materials seem to be a key part of the tasks.
Rating	very good

Technical Review #3

proposal title: The California Zebra Mussel Watch Program

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	Invasive species are an important and timely topic. The Delta area is considered prime habitat for zebra mussels and boats with attached mussels have recently been found entering CA. The overall goal of this project is to continue a previously funded project, a zebra mussel watch program, in order to prevent the spread of mussels into the Delta area of CA. There are no hypotheses. Objectives are stated as tasks, rather than specific objectives, and not until page 11. These are: 1. Continuation of monitoring, with the addition of zooplankton monitoring, 2. Continuation of outreach and information dissemination, 3. Continuation of data management, 4. Continuation of centralized reporting. 5. Program management.
Rating	very good

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

Comments	Although the previously funded project has been on-going since 2000, the authors provide few performance measures from the previous project that justify the new project. 1. How many reports of mussels from the volunteer monitoring (even it they
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Technical Review #3

	<p>turned out to be negative)? 2. To whom and how many have they disseminated information and sightings? 3. How many pamphlets etc. have they disseminated, where, and to whom? 4. How many sightings reported, even if they turned out to be negative? 5. How many web page hits? 6. How many and who subscribes to the e-mail list? 7. Has public awareness of the problem really increased? In other words, how many of the intended audience are they currently reaching? If there are few reports, few sightings (even if false), few web hits, little increased public knowledge of the problem etc. then their current method is not working and continuation of the project is not warranted. Provision of performance information could have made the justification for continuation much stronger.</p>
Rating	fair

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	<p>Although this project will not generate any novel information, methodologies or approaches, the results, even if negative (no sightings) can add to our base of knowledge. In addition, reports of sightings will be useful to decision makers in implementing the drafted Rapid Response Plan. Continued negative reports will be of interest as well.</p> <p>Details of the approach are lacking. Are samplers only visually sampled or with a microscope? How much water will be pumped for the zooplankton samples? Who are the target audiences of the website, email list serve, newsletter, and presentations? Boat inspection and monitoring out-of-state boat traffic is mentioned but no methods/locations are described.</p>
Rating	

Technical Review #3

	good
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Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success?
Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	As these authors have already implemented a nearly identical program, their success in continuing it is highly likely. Their ultimate goal is to prevent the invasion of CA by zebra mussels. While boat inspections and public education will most definitely contribute to that goal, it is not clear how continued monitoring will. I realize that monitoring for larvae and recently settled zebra mussels is the classic method. However, once populations are abundant enough to result in measurable numbers of larvae or juveniles, I question whether they can feasibly be eradicated from the system at that late date.
Rating	good

Monitoring

If applicable, is monitoring appropriately designed (pre-post comparisons; treatment-control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	Monitoring for zebra mussels will take place monthly at a number of sites. This project will also add zooplankton monitoring for larvae, twice per year. It could be very interesting to add water quality monitoring; temp, conductivity, DO, chl. This would serve as a basis for comparing pre- and post- zebra mussels, should they succeed in invading any of the water bodies, and for comparing invaded with un-invaded water bodies within and outside of CA. This information could then be used as predictors of those water bodies at highest risk for invasion.
Rating	

Technical Review #3

	good
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Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	Products include quarterly and annual reports, website, listserv, hotline, printed materials, oral presentations, database, and peer-reviewed publications. The intended audiences of the website, listserv, hotline, and printed materials are not described. All of these products will probably have some value in reaching the ultimate goal of preventing the invasion of CA by zebra mussels. However, as mentioned previously, measures of performance are lacking.
Rating	fair

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	These authors have been conducting a similar project since 2000 and are therefore clearly capable of implementing the proposed project. I do question, however, why presentations and publications did not begin until 2002/2003 (see Table 3). No infrastructure is described. Do authors have access to trucks, boats, computers, a shop for building the monitors, etc.?
Rating	good

Technical Review #3

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	Funds primarily for travel, salaries and benefits are requested. Given that both authors work for California Department of Water Resources, it is unclear if requesting salaries and benefits is justified. There is no indication of the % overhead. \$100 per sampler seems an excessive fee from the subcontractor. I assume that more pamphlets, brochures, cards etc will be printed and distributed; \$300 does not seem adequate for printing.
Rating	fair

Overall

Provide a brief explanation of your summary rating.

Comments	The ultimate goal of this project is a very worthy one. And since the project is ongoing, it would be a shame to discontinue it. However, there are some deficiencies, particularly in measuring whether the project is meeting the intended objectives, especially concerning the public outreach components. I think, however, that the deficiencies outlined in the above sections can be addressed.
Rating	good

